AA0040721 G Granat, I. Ya.

UR 0482

1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

242214 METAL VACUUMING ROUTINE utilises variable rarefication in the feed funnel and high residual pressure in the treatment chamber itself. Varying the residual pressure above the meniscus in the funnel and maintaining the residual pressure inside the chamber ensures smooth control of metal feed and at the same time keeps a constant metal level. Electron ring or vortex pumps are suitable, sealed to the upper lip of the funnel. This allows metal to be poured into the funnel without disturbing the residual pressure control.'
13.5.66 as 1078001/22-2. GRANAT.I.YA et al(11.9.69) Bul 15/25.4.69. Class 18b, 31b2. Int.Cl.C 21c, B 22d.

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1/2

19750364

AA0040721

AUTHORS: Granat, I. Ya.; Gorskiy, V. B.; Zhuravlev, P. Ya.; Skul'skiy, V. I.; and Morozenskiy, L. I.

19750365

USSR

UDC 534.232.46-8

GRANAT, Ye. G., RUBANOV, L. A., VLASOV, S. I.

"Device For Impregnation of Piezoceramic Transducer"

USSR Author's Certificate No 270003, filed 13 June 68, published 31 Aug 70 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3A417P)

Translation: An improved procedure is proposed for impregnation of a piezoceramic transducer, which differs in the fact that a piezoceramic transducer subject to impregnation is used as an ultrasonic vibrator which produces ultrasonic vibrations in a bath with impregnating material. 1 ill. N.B.

1/1

USSR UDC 577.4

GRANBERG, A. G., CHERNYSHEV, A. A.

"Experimental Calculations of the West-East Problem"

V sb. Metody i modeli territorial'n. planir. (Methods and Models of Territorial Planning -- collection of works), vyp. 2, Novosibirsk, 1971, pp 100-137 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V521)

No abstract

1/1

UDC: 51

USSR

GRANBERG, A. G.

"Modifications of an Interterritorial Multisectoral Optimization Model"

V sb. Metody i modeli territorial'n. planir. (Methods and Models of Territorial Planning--collection of works), vyp. 2, Novosibirsk, 1971, pp 5-28 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V449)

[No abstract]

USSR

GRANBERG, A. G., GUR'YEV, V. P.

"Problems of Modeling of Interregional Communications"

Metody i Modeli Territor. Planir. [Methods and Models of Territorial Planning -- Collection of Works], No 1, Novosibirsk, 1971, pp 222-265 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V497).

NO ABSTRACT.

1/1

USSR 62-531.6

BARYAKH, B. M. and GRANBERG, G. Ya. /"Tyazhpromavtomatika" Ukrainian State Design Institute/

"Device for Reversible Control of a Single-Phase Condenser Motor"

USSR Author's Certificate No 294217, filed 13 Jan 69, published 21 May 71 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1971, Abstract No 12A174P)

Translation: A known device for reversible control of a single-phase condenser motor with two unconnected windings contains a flip-flop with two oppositely connected thyristors. The invention can be used as an automatic control element and a remote transmitter. The proposed device provides a reduction in the distortion of the shape of the voltage applied to the control winding of the motor and, consequently, results in an increase in efficiency. This is achieved by equipping the secondary winding of the flip-flop with a center tap, with one of the motor windings connected between the tap and the thyristor cathodes. Each of the thyristors is connected in antiparallel to a diode, and other free taps on the secondary winding of the flip-flop are connected to the outputs of the generated power unit through capacitors. Resume.
1/1

UDC: 658.562.012.7

USSR

BARYAKH, B. M., GRANBERG, G. Ya., LERNER, I. U., SLOTSNIK, Ya. Yu., TSIV'YAN, B. Kh., CHERNKOV, V. V.

"Device for Centralized Testing of Parameters of an Object"

USSR Author's Certificate Number 308433, filed 16/03/70, published 12/08/71 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 3 A371 P)

Translation: A device is suggested for centralized testing of the parameters of an object, containing a unit for selection of parameters, an autocompensator with a servo system, a rotation-digital converter, a unit for checking the accuracy of the servo system of the autocompensator, a defect indicator, a counter unit, and a recorder. In order to increase the speed and reliability of testing, the device contains a threshold unit connected to the input of the rotation-digital converter and a self-testing unit in the servo system, and the output of the threshold unit is connected to one input of the self-testing unit of the servo system, the second input of which is connected to an additional output of the unit for selection of parameters; the output of the counting control is connected

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USSR

BARYAKH, B. M., GRANBERG, G. Ya., LERNER, I. U., SLOTSNIK, Ya. Yu., TSIV'YAN, B. Kh., CHERNKOV, V. V., USSR Author's Certificate Number 308433, filed 16/03/70, published 12/08/71 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 3 A371 P)

to the input of the counting unit, the output of the false balance checking unit is connected to the controlling input of the servo system balancing element, while the output of the signalling unit is connected to the additional inputs of the defect indicator and recorder. 2 figures.

2/2

UDC 547.754:543.422.4:541.67

USSR

GRANDBERG, I. I., BELYAYEVA, L. D., and DMITRIYEV, L. B., Moscow Agricultural Academy Imeni K. A. Timiryazev

"Indoles. XXXV. Preparation of 4-Nitro- and 6-Nitroindoles Forming During Cyclization of m-Nitrophenylhydrazones in Fischer Reaction"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 1, Jan 73, pp 37-39

Abstract: Cyclization of diethyl ketone m-nitrophenylhydrazone was studied under various conditions, always leading to a mixture of 4-nitro-3-methyl-2-ethylindole and 6-nitro-3-methyl-2-ethylindole, the first compound forming in slight excess. The ratio of the isomers depends on the catalyst used. In general, the results support the mechanism of intramolecular electrophilic substitution. The nitrogroup exhibits a strong I- and M-effects. The I-effect deactivates the ortho position, but the mesomeric polarization specifically deactivates the para-position. During the cyclization of the m-substituted phenylhydrazones, steric factors will always favor the formation of 6-isomer, regardless of the electronic nature of the substituent. For example, cyclization of the m-nitrophenylhydrazone of methylisopropyl ketone yields 6-nitro-2,3,3-trimethylindolenine exclusively.

USSR

UDC 547.75.07:543.51

ZHIGULEV, K. K., KHMEL'NITSKIY, R. A., GRANDBERG, I. I., and VYSOTSKIY, V. I., Moscow Agricultural Academy imeni K. A. Timiryazev

"Indoles. XXVII. Mass-spectrometry of Compounds with Eserine and Homoeserine Skeletons"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 8, Aug 72, pp 1065-1069

Abstract: Mass-spectroscopical data on 12 derivatives of dinordesoxy-9--methyleseroline (I) and dinordesoxy-10-methylhomoeseroline (II) have been reported. The derivatives of (I) are somewhat more stable toward electronic bombardment than (II). Introduction of a methyl or methoxy group onto the benzyl ring or $N_{(a)}$ -position increased the stability of the molecular ion. The pyrolidine or piperidine rings are the first to undergo fragmentation, so that the stability of molecular ions must be connected with the localization of the charge on the $N_{(b)}$ nitrogen atom. Most probably the principal dissociation involves the breakdown of the ring, splitting off the methyl group, forming ions with a mass of 30. The most intensive peaks obtained from dissociative ionization correspond to the formation of pseudomolecular ions of 2,3-dimethylindole derivatives. A mechanism of the formation of regrouped pseudomolecular ions $RC_6H_4N^+H_2$ has been proposed.

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USSR

UDC 543.51:547.743

KLYUYEV, N. A., KHEL'NITSKIY, R. A., NIKITINA, S. B., GRANDBERG, I. I.

"Mass Spectra and Structure of Some Pyrrolines"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 10, Oct 71, pp 2038-2043

Abstract: The article describes results of a mass spectrometric study of the behavior of compounds of the pyrroline class under the action of electron impact. The following pyrrolines were studied: 2-methyl-$\Delta^1$-pyrroline, 2-ethyl-$\Delta^1$-pyrroline, 2-isopropyl-$\Delta^1$-pyrroline, 2-phenyl-$\Delta^1$-pyrroline and 1,2-dimethyl-$\Delta^2$-pyrroline. The mass spectra were obtained at a temperature of 250°, accelerating voltage of 2 kv, cathode emission current of 1.5 and 1.0 ma and ionizing electron energies of 50, 30, 20 and 15 ev. Relative sensitivity coefficients and relative ionization cross-sections were determined. It was found that there is a linear relation between the number of carbon atoms in the alkyl substituent and the relative ionization cross-section, described

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KLYUYEV, N. A., et al, Zhurnal Organicheskoy Khimii, Vol 7, No 10, Oct 71, pp 2038-2043

by a regressive equation. It is suggested that in the excited state the studied compounds have an enamine structure and their decomposition path is the result of this form.

USSR

UDC 615.21+612.178

PARIN, V. V., Academician (Deceased), FEDOROV, B. M., GRANDBERG, I. I., BATULIN, Yu. M., and PODREZOVA, N. A., Institute of Medical-Biological Problems, Moscow

"Myorelaxation of Animals by the Injection of 3,5-Dimethyl-4-bromopyrazole and the Effect of Extracardial Nerve Stimulation Under These Conditions"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1,252-1,253

Abstract: Intraperitoneal administration of 3,5-dimethyl-4-bromopyrazole in a dose of 200-400 mg/kg to rabbits or in a dose of 300-500 mg/kg to dogs produced a state of profound myorelaxation, from which the animals recovered within a time that increased with increasing doses of the drug. A dose of 450-500 mg/kg and $>$ 500 mg/kg was lethal for rabbits and dogs, respectively. Study of the effects of direct stimulation of the vagus or of sympathetic nerves effecting adrenergic innervation of the heart, which was carried out in experiments on dogs to which 350-500 mg/kg of the drug had been injected, showed that the state of myorelaxation did not affect the action produced by direct stimulation of the extracardial nerves.

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USSR UDC 547.551.4 + 541.49

GARNOVSKIY, A. D. KOLODYAZHNYY, YU. V., ALIYEVA, S. A., KROKHINA, N. F., GRANDBERG, I. I., OSIPOV, O. A., and PRESNYAKOVA, T. M., Rostov-on-Don State University and All-Union Agricultural Academy imeni K. A. Timiryazev

"Complex Compounds of Metals With Nitrogen-Containing Ligands. XIX. Complexes of Tin Tetrachloride With 1-Pyridylpyrazoles and Their 5-Hydroxy(amino) Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1114-1120

Abstract: Continuing their study of complexing in systems with several donor centers, the authors studied the interaction of tin tetrachloride with 1-($\alpha$, $\beta$ or $\gamma$-pyridyl)pyrazoles and their 5-hydroxy and amino derivatives. The dipole moments of the resultant complexes were determined and their IR spectra studied for purposes of solving the question of the configuration and tautomerism of the ligands. A comparative study was made of the IR spectra of ligand and complex molecules in order to establish the localization site of the coordination bond.

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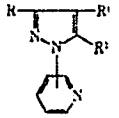
Acc. Nr: AP0100370 Abstracting Service: CHEMICAL ABST. 5710 Ref. Code: UR 0109

110632b Nitrogen-containing biheterocyclic systems. I. Dipole moments and structure of 1-pyridylpyrazoles. Alieva, S. A.; Kolodyazhnyi, Yu. V.; Garnovskii, A. D.; Osipov, O. A.; Grandberg, I. I.; Krokhina, N. F. (Rostov.-na-Donu Gos. Univ., Rostov-on-Don, USSR). *Khim. Geterotsikl. Soedin.* 1970, (1), 45–9 (Russ). The dipole moments of 1-pyridylpyrazoles and their amino derivs. were detd. in $C_6H_6$ at 25° with $5 \times 10^{-4}$–$2 \times 10^{-3}$ mole fraction. Comparison of exptl.



and vectorially calcd. dipole moments shows that 1-pyridyl pyrazoles, and 1-(3- or 4-pyridyl)5-aminopyrazoles have nonplanar configuration; the planar angle between the pyrazole and pyridine rings was calcd. For 1-(2-pyridyl)-5-aminopyrazoles the planar trans configuration is assumed due to intramol. H

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bonding. The following data were obtained (R, $R^1$, $R^2$, position attachment of pyridine ring, and planar angle between two rings given): Me, H, Me, 2, 58°; Me, H, Me, 3, 84°; Me, H, Me, 4, 0°; Pr, Et, $NH_2$, 3, 66°; $PhCH_2$, Ph, $NH_2$, 3, 58°; *p*-$MeC_6H_4$, H, $NH_2$, 3, 80°; Et, Me, $NH_2$, 4, 0°; Me, H, Cl, 1, 0°; Me, H, $NH_2$, 2, 0°; $PhCH_2$, Ph, $NH_2$, 2, 0°; Et, Me, $NH_2$, 2, 0°; Pr, Et, $NH_2$, 2, 0°; *p*-$H_2NC_6H_4$, H, $NH_2$, 2, 0°.

S. K. Banerjee

19841796

1/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--PYRAZOLES. LXIV. PROTONATION OF ANTIPYRINE ANALOGS -U-

AUTHOR-(05)-GRANDBERG, I.I., VINOKUROV, V.G., TROYSKAYA, V.S., IVANOVA, T.A., MOSKALENKO, V.A.
COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (2), 202-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PYRAZOLE, IR SPECTRUM, UV SPECTRUM, IONIZATION, PROTON, HETEROCYCLIC NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1110 STEP NO--UR/0409/70/000/002/0202/0208

CIRC ACCESSION NO--AP0104508
UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104508

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IR SPECTRA IN CHCL SUB3 OR IN CRYST. STATE, UV SPECTRA IN H SUB2 O, MEOH, OR CONCD. HCL, AND EPR SPECTRA IN ME SUB2 SO OR IN 3:1 D SUB2 O-D SUB2 SO SUB4 WERE RECORDED OF ANTIPYRINE ANALOGS (I, II). IONIZATION CONSTS. (PK SUBA) IN WATER WERE MEASURED FOR (I, II, R PRIME1 EQUALS PH, R PRIME2 EQUALS ME) (R PRIME 3, R PRIME5, X AND PK SUBA GIVEN): H, -, O, 2.42; -, H, O, 2.40; ME, -, O, 2.85; ME, -, S, 2.49; ME, -, SE, 2.64; ME, -, NH, 10.4; -, ME, NH, 10.6; -, ME, S. 2.29; -, ME, SE. 2.42, -, ME, O, 2.49.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--NITROGEN CONTAINING BIS HETEROCYCLIC SYSTEMS. IV. SYNTHESIS AND STRUCTURE OF 5,HYDROXY,AMINO,1,BENZAZOLYLPYRAZOLES -U-

AUTHOR-(05)-GARNOVSKIY, A.D., KOLODYAZHNYY, YU.V., GRANDBERG, I.I., ALIYEVA, S.A., KROKHINA, N.F.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (5), 660-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HETEROCYCLIC OXYGEN COMPOUND, PYRAZOLE, THIAZOLE, DIPOLE MOMENT, ORGANIC SYNTHESIS, MOLECULAR STRUCTURE, HYDRAZINE ORGANIC COMPOUND, HYDROXYL RADICAL, AMINE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/E02 STEP NO--UR/0409/70/000/005/0660/0663

CIRC ACCESSION NO--AP0140304

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140304

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.

5,HYDROXY,1,(BENZAZOL,2,YL)PYRAZOLES (I) WERE PREPD. BY REFLUXING A MIXT. OF 0.05 MOLE APPROPRIATE HYDRAZINE AND 0.05 MOLE RCOCHR PRIME1 CO SUB2 R PRIME2 OR PHCH SUB2 C(:NH)CHPHCN (II) IN 50 ML TERT BUOH, 5 ML H SUB2 O, AND 5 ML ACOH 12 HR. THUS PREPD. WERE THE FOLLOWING I (R, R PRIME1, R PRIME2, Y, PERCENT YIELD, AND M.P. GIVEN): PH, H, OH, S, 73, 201DEGREES; PH, CH SUB2 PH, OH, S, 76, 165DEGREES; CH SUB2 PH, PH, OH, NH, 63, 224DEGREES; AND CH SUB2 PH, PH, OH, NCH SUB2 PH,-,-. REFLUXING EQUIMOLAR AMTS. 2,HYDRAZINOBENZOTHIAZOLE, II, AND 30PERCENT HCL IN ISO PROH GAVE 60PERCENT 5,AMINO,4,PHENYL,3,BENZYL,1,(BENZTHIAZOL,2,YL)PYRAZOLE (I) (R EQUALS CH SUB2 PH, R PRIME1 EQUALS PH, R PRIME2 EQUALS NH SUB2, Y EQUALS S), M. 163DEGREES. DIPOLE MOMENT AND IR STUDIES SHOW THAT I EXIST BOTH INT HE CRYST. FORM AND IN SOLN. MAINLY IN HYDROXY AND AMINO FORMS, WHICH ARE STABILIZED BY INTRAMOL. H BONDING. FACILITY: ROSTOV.-NA-DONU GOS. UNIV., ROSTOV-ON-DON, USSR.

UNCLASSIFIED

USSR

UDC 542.957:547.355.9:547.558.1

GRANDBERG, K. I., SMYSLOVA, Ye. I., and KOSINA, A. N., Institute of Metal Organic Compounds, Academy of Sciences USSR

"Reactions of Vinyl(triphenylphosphine) Gold"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 12, Dec 73, pp 2787-2789

Abstract: When vinyl(triphenylphosphine) gold (I) is reacted with electrophilic reagents -- acids, halides, mercury salts -- the gold-carbon bond is broken. Borohydrofluoric acid converts (I) into the borofluoride of gold organic complex cation containing two atoms of gold. With potassium permanganate in acetone (1) yields one of the first representatives of α-aurylated ketones -- triphenylphosphine-gold keton.

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Organophosphorous Compounds

UDC 541.49:547.558.1:541.1'13

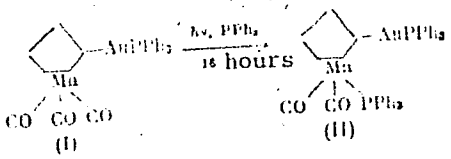
USSR

NESMEYANOV, A. N., NEREVALOVA, E. G., BAUKOVA, T. V., GRANDBERG, K. I.

"Triphenylphosphine Complex of Cyclopentadienyl (Manganesedicarbonyltriphenylphosphine) Gold"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, 1973, pp 2641-2642

Abstract: The triphenylphosphine complex of cyclopentadienyl (manganesedicarbonyltriphenylphosphine) gold (II) was obtained:



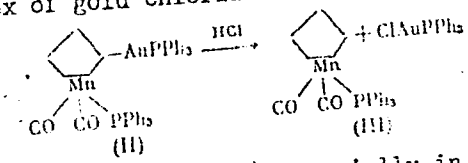

The structure of the (II) complex was established on the basis of spectral data and confirmed by the chemical behavior of the compound. In the infrared spectrum of (II) a shift of the two intense absorption bands of the CO groups toward the long-wave range is observed by comparison with the spectrum of

USSR

NESMEYANOV, A. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, 1973, pp 2641-2642

cyclopentadienyltricarbonylmanganese (I). This usually occurs on replacement of one of the CO groups in the cymantrene by a stronger electron-donor ligand /Kursanov, D. N., et al., Izv. AN SSSR, Ser. Khim., 2842, 1969/. In the para-magnetic resonance spectrum of (II) signals are revealed from the protons of the phosphine groups along with two multipleths of the protons of the substi-tuted cyclopentadienyl ring shifted to the stronger field by comparison with the signals in (I). In the nuclear magnetic resonance spectrum of $^{31}P$ of (II), two signals of the phosphorus nuclei from nonequivalent triphenylphosphine groupings are observed.

When (II) reacts with concentrated hydrochloric acid, (III) and the tri-phenylphosphine complex of gold chloride are formed:




The complex (II) is less stable than (I) especially in solutions, and it decom-poses during chromatographic studies in a column with aluminum oxide in contrast to (I).

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UDC 542.957:547.559.59'118:547.284.3

USSR

NESMEYANOV, A. N., GRANDBERG, K. I., SMYSLOVA, YE. I., and PEREVALOVA, E. G., Moscow State University Imeni M. V. Lomonosov

"Triphenylphosphinegoldacetone"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 72, p 2375

Abstract: Reaction of vinylgoldtriphenylphosphine with an acetone solution of potassium permanganate at 0° yields triphenylphosphinegoldacetone (I). HCl, $HgCl_2$ and $Br_2$ add to (I) in the 1,2-position, while acetyl chloride reacts via 1,4-addition yielding isopropenylacetate and triphenylphosphinegold chloride.

1/1

Organometallic Compounds

UDC 547.13

USSR

GRANDBERG, K. I., BAUKOVA, T. V., PEREVALOVA, E. G., NESMEYANOV, A. N., Academician, Moscow State University imeni M. V. Lomonosov

"[ρ-Tolyl-(triphenylphosphine)-gold]-triphenylphosphinegold Borofluoride"

Moscow, Doklady Akademii Nauk SSR, Vol 206, No 6, 1972, pp 1355-1358

Abstract: The synthesis of [ferrocenyl-(triphenylphosphine)-gold]triphenylphosphinegold borofluoride (I) -- a new type of organogold compound containing two gold atoms per molecule -- was reported earlier [E. G. Perevalova, et al., DAN., Vol 202, 97, 1972]. The formation of this type of complex is not a specific property of ferrocenyl-(triphenylphosphine)-gold. Organogold compounds of the benzene series -- ρ-tolyl-(triphenylphosphine)-gold (II) and phenyl-(triphenylphosphine)-gold (III) -- also react with $HBF_4$ yielding similar complexes; ρ-tolyl-(triphenylphosphine)-gold was obtained from ρ-tolyllithiun and the triphenylphosphine complex of gold chloride. The reaction of II and III with an ether solution of $HBF_4$ leads to the formation of borofluorides of [ρ-tolyl-(triphenylphosphine)-gold]-triphenylphosphinegold (IV) and [phenyl-tripenylphosphine)-gold]-triphenylphosphine-gold (V), respectively. The auriferous ligand $CH_3C_6H_4 \cdot Au \cdot P(C_6H_5)_3$ in

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USSR

GRANDBERG, K. I., et al., Doklady Akademii Nauk SSSR, Vol 206, No 6, 1972, pp 1355-1358

combination with IV is easily replaced by other electron donor ligands -- triphenylphosphine, morpholine, ferrocenyl-(triphenylphosphine)-gold. In the presence of an aqueous solution of sodium chloride, II and the triphenylphosphine complex of gold fluoride are formed. The paramagentic resonance spectra and ultraviolet spectroscopic data of some of the above organogold compounds were analyzed. The experimental procedures and results for the reaction $HBF_4$ and II, $HBF_4$ and phenyl-(triphenylphosphine)-gold, an aqueous solution of sodium chloride and IV, IV and triphenylphosphine, IV and ferrocenyl-(triphenylphosphine)-gold, IV and morpholine, and IV and ferrocenyl-(triphenylphosphine)-gold are described.

2/2

USSR

UDC 547.13

PEREVALOVA, E. G., LEMENOVSKIY, D. A., BAUKOVA, T. V., SHVSLOVA, Yu. L., GRANDBERG, K. I., and NESMEYANOV, A. N., Moscow State University imeni M. V. Lomonosov

"Reaction of Ferrocenyl- and Phenyl(triphenylphosphine)gold with Electrophilic Reagents"

Leningrad, Doklady Akademii Nauk SSSR, Vol 206, No 4, Oct 72, pp 852-855

Abstract: Reactions of ferrocenyl- and phenyl(triphenylphosphine)gold with electrophilic reagents was studied. No electrophilic substitution at the gold atom took place in these reactions, the products indicating that a homolytic process occurred in these reactions. For example, when ferrocenyl(triphenylphosphine)gold reacted with acetic anhydride or acyl chlorides of acetic or trichloroacetic acids, only ferrocene, bisferrocenyl and a salt of the composition $XAu(C_6H_5)_3$ where X = Cl or $OCOCH_3$ were formed. No acylferrocene was isolated. Analogous reactions occur with phenyl(triphenylphosphine)gold, no electrophilic substitution taking place. The results obtained can be explained by the single electron transfer mechanism, this being the first such in a series of reactions. The electron from the C-Au bond is transferred to the splitting reagent, which acts as an electron acceptor.

1/1

Organometallic Compounds

UDC 247.13

USSR

PEREVALOVA, E. G., LEMENOVSKIY, D. A., GRANDBERG, K. I., and NESMEYANOV, A. N., Moscow State University imeni M. V. Lomonosov

"Ferrocenylgoldtriphenylphosphine Complexes With Monovalent Gold Salts"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 1, Jan-Feb 72, pp 93-96

Abstract: Reacting hydroborofluoric acid with ferrocenylgoldtriphenylphosphine (I) yields the borofluoride of (triphenylphosphineferrocenylgold)-triphenylphosphinegold (II). Excess of $HBF_4$ shows no particular effect on the reaction course or on the yield. PMR spectrum of (II) resembles the spectra of ferrocenylcarbcations. The data of NMR and UV spectroscopy indicate that a considerable positive charge is located on the gold atom next to the cyclopentadienyl ring in the compound (II). Compound (II) is believed to be monovalent gold borofluoride bound with two stabilizing ligands - triphenylphosphine and ferrocenylgold triphenylphosphine; the positive charge is evidently delocalized between the gold atoms. Compound (II) is also obtained by reacting (I) with $(C_6H_5)_2Fe^+BF_4^-$, $NO_2^+BF_4^-$, $CH_3CO^+BF_4^-$, except that with these reagents their excess lowers the yield of (II). Reacting (I) with concentrated $H_2SO_4$ produces

1/2

USSR

PEREVALOVA, E. G., et al., Doklady Akademii Nauk SSSR, Vol 202, No 1, Jan-Feb 72, pp 93-96

the sulfate analogue of the compound (II), somewhat less stable than the borofluoride complex. The UV and PMR spectra of the sulfates are identical with those of the borofluorides.

2/2

1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ANALYSIS OF HETEROORGANIC COMPOUNDS. VII. DIFFERENTIAL SPECTROPHOTOMETRIC DETERMINATION OF SILICON AS MOLYBDOSILICIC ACID -U-

AUTHOR-(03)-TERENTYEV, A.P., GRANDSKOVA, N.A., BONDAREVSKAYA, YE.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(1), 196-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--FABRIC, HETEROCYCLIC BASE COMPOUND, SILICON, SPECTROPHOTOMETRIC ANALYSIS, BENZENE DERIVATIVE, ORGANOSILICON COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1328 STEP NO--UR/0075/70/025/001/0196/0198

CIRC ACCESSION NO--AP0055999

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0055999

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A VARIANT FOR THE DIFFERENTIAL SPECTROPHOTOMETRIC METHOD FOR SI DETN. AS MOLYBDOSILICIC ACID IS SUGGESTED WITH K SUB2-CRO SUB4 IMITATING THE COLOR OF THE ACID AS REF. SOLN. THE REF. SOLN. IS PREPD. BY DISSOLVING 3 G K SUB2 CRO SUB4 IN 1 1.0.05N KOH. THE ABSORBANCE OF THIS SOLN. (1 ML IN 50 ML H SUB2 O) CORRESPONDS AT 400 MMU TO THAT OF THE MOLYBDOSILICIC ACID CONTG. 365 MUG SI. THE METHOD CAN BE USED FOR THE DETN. OF SI IN ORGANOSILICON COMPDS., SUCH AS PH SUB3 SIOH, PH SUB3 SIOSIPH SUB3 AND FABRICS IMPREGNATED BY VARIOUS HYDROPHOBIC ORGANOSILICON LIQS. WITH STD. DEVIATIONS OF 0.08-0.14.

UNCLASSIFIED

USSR

MALAKHOVA, M. M., PLYASHKEVICH, Yu. N., GRANEVA, V., LOZDERNIK, I. M., BATUASHVILI, Sh. A., KHEYFETS, V. I.

"Modernization of the Minsk-22 Computer"

Tr. N.-i. i Proekt. In-ta Mekhaniz. i. Avtomatiz. upr Proiz-vom v Avtomob. Prom-sti. [Works of Scientific Research and Planning Institute for Mechanization and Automation of Production Control in the Motor Vehicle Industry], No 1, 1971, pp 132-141, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V482 by the author's).

Translation: A number of modernizations of the Minsk-22 computer are described. Diagrams and descriptions are presented of changes concerning the punch card input device, magnetic tape reader, input start stop mechanism card puncher and matching of magnetic drum to computer.

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USSR UDC 681.32

MALAKHOVA, M. M., PLYASHKEVICH, YU. N., GRANEVA, V. M., LOZDERNIK, I. M., BATUASHVILI, SH. A., and KHEYFETS, V. I.

"Updating the Minsk-22 Computer"

Tr. N.-i. i proyekt. in-ta mekhaniz. i avtomatiz. upr. proiz-vom v avtomob. prom-sti (Works of Scientific-Research and Planning Institute for the Mechanization and Automation of Production Control in the Automobile Industry), 1971, vyp. 1, pp 132-141 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, May 72, Abstract No 5B75 by V. F.)

Translation: The article describes a number of modernizations in the Minsk-22 computer and gives circuits and descriptions of changes affecting the card and magnetic tape input units, the start-stop input mechanism, etc. Eight illustrations. Bibliography with two titles.

1/1

Photography

USSR UDC 778.37

DUBOVIK, A. S., and GRANIGG, A. B.

"Driven-Sweep Type Mirror Scanning in High-Speed Cameras"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii, Vol 16, No 2, March-April 1971, pp 81-86

Abstract: Some driven-sweep type mirror scanning systems used in cameras operating both in the frame mode and the slit scanning mode are investigated in this paper. The general principles of driven-sweep mirror scanning used in high-speed cameras are investigated. Special attention is given to mirror scanning systems which permit maximum shooting speeds.

The following mirror scanning systems are described: systems constructed on the basis of plane-parallel mirrors and on the basis of mirror polyhedrons, systems located in one plane and in two and more planes, systems having two optical inlets and two, four and more working sections in which the investigated processes are recorded. Mathematical relations permitting calculation of the basic parameters of mirror scanning systems are presented, and the structural features, advantages and deficiencies of the described systems are discussed.

1/1

USSR

UDC: 538.4

GRANIK, A. T.

"Interaction of Fast Magnetosonic and Shock Waves"

Riga, Magnitnaya Gidrodinamika, No 2, 1972, pp 20-24

Abstract: This paper considers a situation in which a shock wave propagated in an ideal, electrically conducting gas encounters a fast magnetosonic wave head on. This situation is considered in a rectilinear coordinate system, with the interface fixed in the yz plane (x = 0), and the gas moving through it in the positive x direction. The incident magnetosonic wave moves in the same direction. In the unperturbed magnetic field $H_x \ll H_y$, so that the field is practically parallel to the interface. Beginning with the laws of conservation, the author obtains a system of five equations with five unknowns and arrives at a single equation for the ratio of the pressures of the incident and transmitted fast magnetosonic waves. The behavior of this solution is investigated for the case of gas-dynamic degeneration.

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USSR

UDC 536.46:538.6

GRANIK, A. T.

"One-Dimensional Stability of Normal Gas Burning in a Constant Magnetic Field"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol. 20, No. 5, May, 1971, pp 841-845

Abstract: In the paper the results of studying the stability of normal gas burning in a uniform magnetic field are presented. The solutions of linearized system of magnetohydrodynamics are joined at discontinuity surfaces by the continuity laws and reverse equations. A characteristic equation is obtained relative to the frequency $\omega$. The solution of this equation within $0 \left( \frac{M^2}{1 + M_m^2} \right)$ is presented in an explicit form. The analysis of the equation shows that the magnetic field exerts intense stabilizing effect which leads to the expansion of the burning stability region as compared to nonmagnetic case studied previously.

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1/2 021 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--PHASE COMPOSITION OF A BINDER FOR A DIAMOND TOOL -U-

AUTHOR-(03)-POGODINALEKSEYEV, G.I., GRANIK, G.I., NAUMOVA, M.M.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2), 53-4

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--DIAMOND, CUTTING TOOL, ALLOY DESIGNATION, ALUMINUM ALLOY, COPPER BASE ALLOY, SOLID SOLUTION, INTERMETALLIC COMPOUND, TIN ALLOY, ZINC ALLOY, MAGNESIUM ALLOY/(U)M5 DIAMOND TOOD BINDER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1290 STEP NO--UR/0129/70/000/002/0053/0054

CIRC ACCESSION NO--AP0106071

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106071

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHASE COMPN. OF THE NEW M5 BINDER CONTG. AL 50, AN 24, CU 15, SN 5.5, MG 3.4, SI 1.5, AND CR 0.6PERCENT WAS STUDIED BY X RAY STRUCTURAL AND MICROPROBE ANAL. METHODS. THE X RAY PATTERNS WERE OBTAINED BY USING CU K SUBALPHA RADIATION AND POWD. AS WELL AS SOLID SPECIMENS. THE BINDER COMPN. CONSISTS OF 5 PHASES: THE AL BASE SOLID SOLN. CONTG. CU AND ZN (FCC.); THE ZN BASE SOLID SOLN. (HEXAGONAL); THE CUAL SUB2 BASE SOLID SOLN. (TETRAGONAL); THE MGZN SUB2 BASE SOLID SOLN. (HEXAGONAL); AND THE CU SUB3 SN BASE SOLID SOLN. (HEXAGONAL). ALSO A CU BASE SOLID SOLN. (FCC.) AND THE CU SUB6 SN SUB5 COMPD. (THE SUPERSTRUCTURE OF THE NIAS TYPE LATTICE) ARE ASSUMED TO BE PRESENT.

UNCLASSIFIED

USSR

UDC 616.2-057-02:613.632.4

SMIRNOVA, N. A., and GRANIK, N. P.

"Remote Aftereffects of Acute Occupational Lesions of the Respiratory Tract Caused by the Action of Irritating Gases"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, Vol 15, No 11, Nov 71, pp 16-19

Abstract: Remote aftereffects were investigated after acute occupational lesion of the respiratory tract in 88 workers at chemical enterprises as a result of exposure to chlorine (46 cases), hydrogen chloride (2 cases), phosgene (9 cases), nitrogen oxides (11 cases), nickel tetracarbonyl (14 cases), formaldehyde (4 cases), and ammonia (2 cases). The remote aftereffects, which were exhibited by 35 persons, comprised pneumosclerosis, bronchitis of various degrees of severity, bronchiectasis, pulmonary emphysema, and respiratory insufficiency. Subatrophic pharyngo-laryngitis was also encountered, but rarely. The most severe remote aftereffects followed renewed acute intoxication with irritating gases. Persons who have sustained acute poisoning with such irritants should remain under medical observation and work for a certain period of time under conditions in which renewed contact with irritating substances cannot occur.

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USSR

UDC 629.7.036.3.002.3

GRANIN, S. S. and RAVICH, A. V.

"Wear of Graphitized Carbon and Chrome Plated Friction Pair Surfaces of High-Speed End-Contact Seals"

Tr. Kuybyshev. aviats. in-t (Works of the Kuybyshev Aviation Institute), 1972, vyp. 51, pp 129-140 (from RZh-34. Aviatsionnyye i Raketnyye Dvigateli, No 4, Apr 73, Abstract No 4.34.99)

Translation: Results are given from tests on the experimental lapping of the friction pairs of end-contact seals which are designated for sealing off shafts from air leaks at a sliding speed up to 100m/sec. Graphitized carbon rings and discs made from the 40KhNMA material were used for the friction pairs. Original article: 8 illus. and 16 bibl.

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Hydraulic & Pneumatic

USSR

BELOUSOV, A. I., MAKUSHIN, A. B., GRANIN, S. S., RAVICH, A. V.

"Experimental Study of Flow Characteristics of Dual Radial Hydrostatic Bearing with Self Choking"

Tr. Kuybyshev. Aviats. In-t [Works of Kuybyshev Institute of Aviation], 1972, No 51, pp 99-115 (Translated from Referativnyy Zhurnal Mekhanika, No 5, 1973, Abstract No 5B709, by A. I. Snopov).

Translation: A description and experimental results are produced of a study for determination of the flow rate in a dual hydrostatic bearing with self choking. The bearing has pockets on the shaft, with oil fed into the pockets through apertures in the bushing from a common circular chamber. The apertures are covered with a cylindrical sleeve, rigidly connected to the shaft so that the oil, before entering the feed holes, flows through a circular slit of variable thickness, depending on the displacement of the shaft. The case of symmetrical two-row feed with four chambers per row (dual bearing) is studied. The length of each working portion of the bearing is 55 mm, the shaft diameter is 50 mm. Assuming that the flow rate depends little on eccentricity, tests were performed for the case when the shaft touches the bushing ($\varepsilon = 1$). The

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Belousov, A. I., Makushin, A. B., Granin, S. S., Ravich, A. V., Tr. Kuybyshev. Aviats. In-t, 1972, No 51, pp 99-115.

pressure was varied from 0 to 2 kg/cm$^2$. The properties of the oil are not indicated.

Twelve graphs are presented of the dependence of oil flow rate through each end and the summary flow rate as functions of the distance from the pockets to the end, as well as 8 graphs of the dependence of these flow rates on feed pressure for various shaft positions. A significant divergence is noted between theoretical and experimental data on flow rate for each end, and good (within 10%) agreement is noted for summary flow.

Also, certain results of static testing of an individual bearing with self choking with shaft diameter 150 mm are presented, including 5 graphs of loading and flow rate characteristics, the dependences of pressure in the end gap at the exit from the bearing on fluid feed pressure at the input, which reached 100 kg/cm$^2$.

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USSR

UDC: 629.78.018.3

BELOUSOV, A.I., MAKUSHIN, A.B., GRANIN, S.S. and RAVICH, A.V.

"Experimental Investigation of Flow Rate Characteristic of Coupled Radial Selfthrottling Hydrostatic Bearing"

Kuybyshev, Tr. Kuybyshev. Aviats. In-ta (Transactions of Kuybyshev Aviation Institute), 1972, vyp 51, pp 99-115 (from Referativnyy Zhurnal-Raketostroyeniye, 1973, Abstract No 4.41.264 by T.A.E.).

Translation: Hydrostatic bearings can support heavy loads without rotation of the shaft. However, this involves a relatively high rate of flow through the bearing, increases operating cost of high-power units and reduces their efficiency. With some designs high losses of liquid cannot be tolerated. In such cases the hydrostatic support functions as a bearing and as a seal. At this time, designs of low-flow hydrostatic bearings have been developed. One of such designs is the selfthrottling radial hydrostatic bearing. Investigation results are presented of flow-rate characteristic of a coupled selfthrottling bearing consisting of a block of bearings with a common supply of liquid.
15 illustrations. 1 reference.
1/1

USSR

UDC: 532.516.2

BELOUSOV, A. I., GRANIN, S. S.

"Effect of the Forces of Inertia of the Fluid on the Characteristics of a Hydrostatic Thrust Bearing"

Tr. Kuybyshev. aviats. in-t (Works of the Kuybyshev Aviation Institute), 1971, vyp. 35, pp 48-52 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9B788)

Translation: The authors investigate the effect of shaft rotation on the distribution of pressures in axisymmetric flow of an incompressible lubricant in an annular gap of fixed thickness in a hydrostatic thrust bearing fed through a central pocket. The thin-layer equations

$$\rho v \frac{\partial v}{\partial r} - \rho \frac{u^2}{r} = -\frac{\partial p}{\partial r} + \mu \frac{\partial^2 v}{\partial y^2}$$

$$\frac{\partial^2 u}{\partial y^2} = 0$$

$$\frac{1}{r} \frac{\partial}{\partial r} (rv) + \frac{\partial w}{\partial y} = 0$$

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USSR

BELOUSOV, A. I., GRANIN, S. S., Tr. Kuybyshev. aviats. in-t, 1971, vyp. 35, pp 48-52

are taken as the initial equations, where $\rho$ is density, $p$ is pressure, $u$, $v$ and $w$ are the radial, tangential and transverse components of velocity respectively, $\mu$ is the coefficient of viscosity, and $r$ and $y$ are cylindrical coordinates. It is assumed that the temperature is a linear function of radius, and that the viscosity is inversely proportional to temperature. When the equations are integrated under sticking conditions, the term $\rho v \partial v/\partial r$ is averaged over the thickness of the layer and expressed in terms of flowrate. Formulas are found for the distribution of pressures and for lifting capacity. Two numerical examples are given which show the appreciable influence of inertial forces of the lubricant on the lifting capacities of the bearing; under certain conditions the bearing may lose lifting capacity. A. I. Snopov.

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UDC 632.95

USSR

BLIZNYUK, N. K., KOLOMIYETS, A. F., GOLUBEVA, R. N., GRANIN, Ye. F., FADEYEV, Yu. N., VRUBLEVSKAYA, L. S., VARSHAVSKIY, S. L., KOFMAN, L. P., VIKHANSKIY, K. N.

"A Method of Making Derivatives of Aryl Esters of β-Isothiuronium Ethanesulfonic Acid"

USSR Author's Certificate No 337381, filed 1 Aug 63, published 1 Jun 72 (from RZh-Khimiya, No 9, May 73, abstract No 9N522P by T. G. Chekareva)

Translation: Compounds of the general formula $RO_3SC_2H_4SC(NH_2)=NH\cdot HA$ (I) (R = aryl unsubstituted or substituted by Cl, $No_2$, Me; A = Cl or an organic acid radical) are synthesized by reacting $Ch_2{=}CHSO_3R$ (II) with salts of thiourea or a mixture of thiourea with inorganic or organic acids. Example. Solutions of equimolar quantities of II and thiourea hydrochloride in butanol which are saturated at 60-90°C are heated at 80-90°C for 1 hour, cooled, and filtered, giving I with a yield of 85-96%. Evaporation of the mother liquor gives an additional quantity of I. The overall yield of I is 95-100%. The following compounds of type I (A = Cl) are synthesized (given are R and the melting point in °C): Ph, 165-6; $4\text{-}ClC_6H_4$ (Ia),

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BLIZNYUK, N. K., et al., USSR Author's Certificate No 337381, filed 1 Aug 63, published 1 Jun 72

144-6; 3-$ClC_6H_4$, 168-70; 2,4-$Cl_2C_6H_3$, 157-9; 2,4,5-$Cl_3C_6H_2$, 178-80; 2,4,6--$Cl_3C_6H_2$, 184 (decomp.); 4-$NO_2C_6H_4$, 155-8; 3-$MeC_6H_4$, 160-2. Saturated aqueous solutions of equimolar quantities of Ia and 2,4-$Cl_2C_6H_3OCH_2COONa$ are mixed at 90-100°C, cooled, and filtered, giving compound I (A = 2,4-$Cl_2C_6H_3OCH_2COO$-, R = 4-$ClC_6H_4$), melting point 134-5°C, yield 99.5%. In concentrations of 3.1-25 mg per liter compound I suppresses the growth of the mycelium Botritis cinerea and Piricularia orysae by 50-100%; in concentrations of 0.25-1 mg per liter, compound I suppresses the growth of spores of Botritis cinerea and Piricularia orysae by 8-100%, and in a concentration of 0.1% the chemical suppresses rust of the wheat strain Puccinia graminis f. tritici by 42-58%.

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--METHOD OF CONSTRUCTING TRANSIENT PROCESSES IN ELECTRODRIVES WITH NONLINEAR STATIC CHARACTERISTICS OF TRANSDUCERS -U-

AUTHOR--GRANITOV, G.I.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 6, PP 164-167

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--NONLINEAR SYSTEM, ELECTRIC ANALOG, DRIVE TRAIN, MAGNETIC AMPLIFIER, THYRISTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1021 STEP NO--UR/0103/70/000/006/0164/0167

CIRC ACCESSION NO--AP0124680

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124680

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE IS PRESENTED AN ENGINEERING METHOD OF CONSTRUCTING A TRANSIENT PROCESS IN NONLINEAR SYSTEMS OF AN AUTOMATED ELECTRODRIVE, THE SYSTEMS CONTAINING STATIC TRANSDUCERS (MAGNETIC AND THYRISTOR AMPLIFIERS) WITH A NONLINEAR INPUT OUTPUT CHARACTERISTIC. AN EXAMPLE OF BUILDING A TRANSIENT PROCESS IN A SERIAL DRIVE IS GIVEN.

UNCLASSIFIED

USSR

UDC: 621.791.72:621.373.8

LEBEDEV, V. K., GRANITSA, V. T., and GRASHCHUK, V. P., Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences, Ukrainian SSR

"The Effect of Radiation Pulse Shape on the Depth of the Zone of Fusion During Laser Welding"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 73, pp 10-12

Abstract: The authors present the results from studying the nature of the relation between depth in the fusion zone and radiation energy during the effect of various pulses. The results show that the shape of a radiation pulse with exponentially varying power with respect to time is most rational, since it ensures maximal depth of fusion and minimal energy loss. Copper plate was used as the material to be welded by the optical laser.

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USSR UDC 621.791.72:535.14:621.315.3

LEBEDEV, V. K., and GRANITSA, V. T.

"Laser Welding of Insulated Winding Wires"

Kiev, Avtomaticheskaya svarka, No 3, Mar 72, pp 70-71

Abstract: Described are experiments conducted at the Electric Welding Institute imeni Ye. O. Paton involving laser welding of cylindrical and flat terminals of insulated winding wires. The welding was done with a modernized UL-2 ruby-crystal unit by overlapping. A curve shows the dependence of the weld strength on radiation energy W. With increasing energy, the weld strength increases, attains its maximum, and then smoothly decreases. Based on both visual and metallographic examinations, the decrease in strength is attributed to vaporization caused by the increase in energy. Under optimum conditions the strength of welded joints comes to 70-90% of that of the wire. The study indicates the feasibility of laser-radiation welding for Viniflex-insulated winding wire. The new technique eliminates the time-consuming operations such as stripping, degreasing, fluxing, and tinning. (2 illustrations)

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USSR UDC 681.11.033.1

GRANKIN, V. K., MAKAROV, YU. S., RONZHIN, O. V., KOZYREV, L. S., and YEGOROV, A. YE.

"An Information Display Device"

USSR Author's Certificate No 372566 kl G 06 k 15/18, filed 17 Sep 70, published 27 Apr 73 (from RZh Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 73, abstract No 11 A405P)

Translation: An apparatus is proposed for information display, containing indicators and current conductors. To improve the reliability and visibility of the apparatus, its indicators are in the form of lighted edges located along the outline of geometric figures, with the current conductors at the vertices. One illustration.

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Ion Exchange

USSR

UDC 546.04;546.62'33

TOMILOV, N. P., BERGER, A. S., GRANKINA, V. I., POROSHINA, I. A.

"Ion-Exchange Properties of Sodium Hydroalumocarbonate"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSR -- Seriya Khimicheskikh Nauk, No 1, 1973, pp 88-92

Abstract: The results are presented from a study of the equilibrium distribution of cations ($Na^+$ and $Ag^+$) and the kinetics of the exchange process between sodium hydroalumocarbonate and $AgNO_3$ solutions. The cation-exchange isotherm was determined at 25° C for $Na_2O \cdot Al_2O_3 \cdot 2CO_2 \cdot 3H_2O$ and a mixture of sodium nitrate and silver nitrate solutions. With the ion fraction of silver in the equilibrium liquid phases equal to or greater than 0.1, the degree of substitution of $Ag^+$ for $Na^+$ in the equilibrium solid phases is 97-99.5%. The phases with variable $Na^+$ and $Ag^+$ content are members of a continuous series of solid solutions between the sodium and silver forms of hydroalumocarbonate. The limiting stage of the exchange is diffusion of the $Na^+$ and $Ag^+$ ions in the solid phase. The mutual diffusion coefficient of the indicated ions determined on the basis of the kinetic measurements $\overline{D}_{Na,Ag} = 5.7 \cdot 10^{-6}$ $cm^2$/sec agrees satisfactorily with the calculated value of $-5.1 \cdot 10^{-6}$ $cm^2$/sec.

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UDC 546.791'27'11

USSR

VOLKOV, V. V., GRANKINA, Z. A., and MYAKISHEV, K. G.

"The Nature of Uranium (Tetravalent) Borohydride"

Leningrad, Radiokhimiya, Vol XIII, No 3, 1971, pp 401-405

Abstract: Tetravalent uranium borohydride, $U(BH_4)_4$ is of interest as a member of a comparatively new class of compounds, namely the metal hydroborates noted for the presence of boron hydride ions or radicals. However, the structure of $U(BH_4)_4$, and its appropriate classification in the salt-forming or the non-salt-forming categories of metal hydroborates, are in doubt, thanks to contradictory published data.

The authors made a complete infrared analysis of $U(BH_4)_4$ samples synthesized by the Brown-Schlesinger method; also, a thermographic study of the samples.

It was concluded that the $U(BH_4)_4$ molecule is of "bridge" structure, which involves the presence of a substantially covalent U - B bond with participation of the "bridge" atoms of hydrogen. Further, it was shown that

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VOLKOV, V. V., et al., Radiokhimiya, Vol XIII, No 3, 1971, pp 401-405

$U(BH_4)_4$ does not undergo any phase transformations in the temperature interval from --180 to 55°C. The interplanar distances which may characterize $U(BH_4)_4$ were also determined.

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AP9053082

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR, Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5, pp 85-92

A. A. Vasil'eva, L. M. Gindin, Z. A. Grankina, G. I. Smirnova, I. R. Shelpakova, I. G. Judelevich

13 3 1 19

# ANALYSIS OF PLATINUM METALS BY THE EXTRACTION-SPECTRAL AND PHOTOMETRIC METHODS

## I. Extraction of Platinum and Palladium from Iridium, Rhodium and Ruthenium for the Analytic Purposes

In the extraction of Pt (IV), Pd (II), Ir (III), Rh (III) and Ru (III) with tetraoctylammonium bromide from toluenecaprylic acid (HR') and from toluene-2-ethylbekanol (R"OH) decrease of the acid (alcohol) concentration results in a decrease of the distribution coefficients with all the metals studied.

Caprylic acid forms a product of the composition $\{(C_8H_{17})_4NB_2\}_2(HR_2)$. With tetra-

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octylammonium bromide as revealed by the JRS method.

This interaction is the cause of the "decreasing" effect of HR'(R"OH) on the ability of Br-ion to the exchange reactions with the extractable anions.

The chemical and spectral method have been elaborated for the determination of the platinum metals in HCl-media.

9/2 1949 1840

Acc. Nr: AF0100219 Ref. Code: UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, No 2, Seriya Khimicheskikh Nauk, 1970, Nr 1, pp 39-44

L. K. Chuchalin, Z. A. Grankina,
S. P. Khranenko, B. I. Peshchevitskiy

# INFRA-RED STUDY OF THE COMPOSITION AND STRUCTURE OF HYDROXONIUM ION COMPOUNDS FORMED BY THE EXTRACTION OF STRONG MINERAL ACIDS WITH TRI-*n*-BUTYL PHOSPHATE

Infra-red investigation of the solvates of hydroxonium ion formed by the extraction of $HTiCl_4$ and $HClO_4$ with tri-*n*-butyl phosphate (TBP) has been made. Solvates $[H_3O \cdot 3H_2O]^+_{aq,solv}$, $[H_3O \cdot 2H_2O \cdot TBP]^+_{solv}$, $[H_3O \cdot H_2O \cdot 2TBP]^+_{solv}$, $[H_3O \cdot 3TBP]^+_{aq}$, $[H_3O \cdot 2H_2O \cdot TBP]^+$ have been found in extracts of $HTiCl_4$ and solvates $[H_3O \cdot 3H_2O]^+_{aq,solv}$, $[H_3O \cdot 2H_2O \cdot TBP]^+_{solv}$, $[H_3O \cdot H_2O \cdot 2TBP]^+$, $[H_3O^+ \cdot H_2O \cdot TBP \cdot ClO_4^-]$ in extracts of perchloric acid. With increase of acid concentration in organic phase, each preceeding form turns into subsequent one.

REEL/FRAME
19841609

1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV7?

TITLE--EXTRACTION OF SOME ACIDS BY TRI,N,OCTYLAMINE -U-

AUTHOR-(04)-NIKOLAYEV, A.V., KOLESNIKOV, A.A., GRISHIN, G.M., GRANKINA, Z.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(5), 1074-6 CHEM

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AMINE, ACID, POTENTIOMETRIC TITRATION, IR SPECTRUM, CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1111 STEP NO--UR/0020/70/191/005/1074/1076

CIRC ACCESSION NO--AT0134797

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--13NOV7C

CIRC ACCESSION NO--AT0134797

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SYSTEMS TRI,N,OCTYLAMINE,H SUB2 O,ACID WERE STUDIED BY USING THE ACIDS HCL, H SUB3 PO SUB4, HNO SUB3, AND H SUB2 SO SUB4. POTENTIOMETRIC TITRIN. AND IR METHODS WERE USED TO ANALYZE THE PHASES. IN THIS SYSTEM THERE IS A LARGE REGION IN WHICH 3 LIQ. PHASES COEXIST: AN AQ. AND 2 ORG. PHASES. ONE ORG. PHASE CORRESPONDS TO THE HYDRATED SALT OF TRIOCTYLAMINE AND THE CORRESPONDING ACID AND THE OTHER PHASE TO THE PURE AMINE. THE IR DATA ESTABLISHED THE INTER PRESENCE OF INTERACTION BETWEEN THE SALT AND WATER USING THE HCL SALT AS EXAMPLE. FACILITY: INST. NEORG. KHIM., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

AGEYEV, N. V., Academician, PETROVA, L. A., GRANKOVA, L. P., MARKOV, A. M., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences of the USSR, Moscow

"A Titanium-Based Composite Material"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 4, 1 Jun 73, pp 811-814

Abstract: The paper describes a composite laminar material based on titanium made by hot-rolling in a vacuum. Five-layer and three-layer composites are studied to determine the force and temperature parameters and the feasibility of making a strong joint between layers. The plastic component for the five-layered composite was VT1 α-titanium foil 0.1 mm thick. It was assumed that a sheet built up from n layers of such foil would have greater resistance to brittle fracture than a monolithic sheet of titanium of the same thickness. The foil was etched in dilute hydrofluoric acid and washed in hot water with hydrogen peroxide added before rolling the sheet. A sheet 0.6 mm thick was then rolled from nine layers of foil, and two such sheets were rolled together to make a sheet about 1 mm thick, which was used in the composite. The strength material for

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USSR

AGEYEV, N. V. et al., Doklady Akademii Nauk SSSR, Vol 210, No 4, 1 Jun 73, pp 811-814

the composite was IVT1 alloy (Ti-7Mo-5.5Cr-3Fe-3Al) in 0.65 mm cold-rolled sheets. The two outside plates and the central plate were IVT1 alloy with alternating layers of titanium foil. After assembly of the stack, the edges were welded and rolling was done to 35% reduction at 1100°C. The resultant 2.7 mm plate was then cold-rolled to 2.3 mm. The plate was cut in the direction of rolling into specimens which were heat treated and studied for structure, microhardness of the layers and diffusion redistribution of the alloying elements between layers. The three-layer sandwich plates were made with α-titanium in the outer layers and an alloy similar to IVT1 in the center. The results of tests show that specimens made up of n layers of the same material are stronger than a monolithic plate of the same thickness. Greater strength can also be achieved by increasing the number of layers in a composite material.

2/2

USSR

UDC 669.295:620.186.5

PETROVA, L. A., BABAREKO, A. A., GRANKOVA, L. P., KOZLOVSKAYA, T. M., and SAZONOVA, T. N., Institute of Metallurgy imeni A. A. Baykov

"Recrystallization of β-Alloy of IVT-1 Titanium"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, 1972, pp 30-34

Abstract: The ionization method of taking texturograms was used for plotting polar figures. The changing character in annealing of polar figures describes the process of recrystallization. Specimens were cut from a bar forged by broaching in two perpendicular directions at 950°C. The specimens were annealed in air at 400-1200°C with 30 min aging at each temperature. The textures of specimens of different grain size and boundary character in continuous heating up to 700°C are discussed by reference to microstructures and polar figures. Specimens annealed at 600°C showed a considerably changed texture in comparison with the initial texture. This is connected with the beginning recrystallization, which is practically completed at 650°C. Extrusion or forging by a more complex method is recommended for obtaining stable properties of normal forging on two mutually perpendicular surfaces. Two figures, one bibliographic reference.
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USSR

UDC 669.295.5:539.376

AGEYEV, N. V., PETROVA, L. A., GREKOV, N. A., GRANKOVA, L. P., KOZLOVSKAYA, T. M., and ARKOVENKO, G. I., Moscow

"Creep of IVT-1, a β-Alloy of Titanium"

Moscow, IAN SSSR, Metally, No 2, Mar-Apr 71, pp 163-167

Abstract: The creep of IVT-1, a β-alloy of titanium (7% Mo, 5.5% Cr, 3% Fe, 3% Al, remainder Ti) was determined at temperatures of 100, 200, 250, and 350°C at stresses of 120, 115, 110, 90, 80, and 75 kg/mm$^2$ over 1,000 hours and in some cases up to 2,500 hours. The limiting stress causing 0.02% residual deformation of the alloy after 1,000 hours is 105 kg/mm$^2$ at 200°C and 79 kg/mm$^2$ at 250°C. The rate of stable creep at these stresses and temperatures is $2 \cdot 10^{-5}$%/hr. The creep tests showed that if two specimens tested under identical conditions show different initial deformation, the specimen with greater initial deformation generally has lower creep than the specimen with less initial deformation. Total deformation increases little with increasing load time at 100-250°C and 120-75 kg/mm$^2$. Following creep tests, some breakup of β phase grains is observed; migration of grain boundaries and displacement along grain axes (slipping) were noted.

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USSR

UDC: 539.385

AGEYEV, N.V., PETROVA, L.A., TERENT'YEV, V.F., GRANKOVA, L.P. and KOZLOVSKAYA, T.M., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR

"Effect of Structure on the Cyclic Strength of IVT1 Titanium Beta-Alloy"

Moscow, Sb. "Ustalost' metallov i splavov". "Nauka" Press, 1971, pp 70-73

Translation: The cyclic strength of IVT1 titanium alloy (6.7% Mo, 4.99% Cr, 2.8% Fe, 3.1% Al) has been investigated under alternating loads following heat treatments under various conditions. The structure of the alloy was examined as a function of these conditions under both light and electron microscopes. The highest fatigue limit of 5.3 kg/mm$^2$ was exhibited by an alloy heat treated under the following specifications: hardening at 800C for 1 hr., water quenching, aging for 15 hrs. at 550C, and cooling in open air. The alloy treated under these conditions is characterized by homogeneous decay of the $\beta$-solid solution. (3 illustrations, 6 bibliographic references; summary).

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USSR

UDC 669.295.5:539.376

AGEYEV, N. V., PETROVA, L. A., GREKOV, N. A., GRANKOVA, L. P., KOZLOVSKAYA, T. M., and ARKOVENKO, G. I., Moscow

"Creep of IVT-1, a β-Alloy of Titanium"

Moscow, IAN SSSR, Metally, No 2, Mar-Apr 71, pp 163-167

Abstract: The creep of IVT-1, a β-alloy of titanium (7% Mo, 5.5% Cr, 3% Fe, 3% Al, remainder Ti) was determined at temperatures of 100, 200, 250, and 350°C at stresses of 120, 115, 110, 90, 80, and 75 kg/mm$^2$ over 1,000 hours and in some cases up to 2,500 hours. The limiting stress causing 0.02% residual deformation of the alloy after 1,000 hours is 105 kg/mm$^2$ at 200°C and 79 kg/mm$^2$ at 250°C. The rate of stable creep at these stresses and temperatures is $2 \cdot 10^{-5}$%/hr. The creep tests showed that if two specimens tested under identical conditions show different initial deformation, the specimen with greater initial deformation generally has lower creep than the specimen with less initial deformation. Total deformation increases little with increasing load time at 100-250°C and 120-75 kg/mm$^2$. Following creep tests, some breakup of β phase grains is observed; migration of grain boundaries and displacement along grain axes (slipping) were noted.

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Acc. Nr: AP0047353 Ref. Code: UR0589

PRIMARY SOURCE: Vestnik Khirurgii imeni I. I. Grekova, 1970, Vol 104, Nr 1, pp 49-53

# THE DIAGNOSTIC OPPORTUNITIES OF PORTOHEPATOGRAPHY WITH AN OILY CONTRAST SUBSTANCE

By A. M. Ganichkin, A. M. Granov and V. A. Mikhaylov

Based on the experimental and clinical studies it is felt that the use of contrast substances on oil base widen the opportunities of portohepatography, providing a distinct image of intrahepatic vessels.

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REEL/FRAME

19790879

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USSR

UDC 621.396.677(02)

ARDAB'YEVSKIY, A. I., VOLKOV, O. A., VOSKRESENSKIY, D. I., GOSTYUKHIN, V. L., GRANOVSKAYA, R. A., GRINEVA, K. I., KRITSYN, V. A., MYAKISHEV, B. YA., FILIPPOV, V. S., CHEBYSHEV, V. V.

"Microwave Antennas and Devices. Calculation and Design of Antenna Arrays and their Radiating Elements. Textbook for Students at the Radiotechnical Specialized Institions of Higher Learning"

Antenny i ustroystva SVCh. Raschet i proyektirovaniye antennykh reshetok i ikh izluchayushchikh elementov. Uchebn. posobiye dlya stud. radiotekhn. spets. vyzov (cf. English above), Moscow, Soviet Radio, 1972, 320 pp, ill., 75 k. (from RZh-Radiotekhnika, No 6, Jun 72, Abstract No 5B32K)

Translation: Methods of calculating the basic parameters of antenna arrays with electric rocking of the radiation pattern and frequency and commutation methods of controlling the radiation pattern are discussed. A study is made of the structure of the optimal arrays with Dolf-Chebyshev distribution, the design of irised-wave guide and horn arrays and also methods of calculating the array elements: dielectric, rod, spiral, horn and director antennas.

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USSR

UDC: 8.74

GRANOVSKAYA, R. M., VOROB'YEV, O. Yu.

"Synthesis of a Mathematical Model of a Neuron"

V sb. Vychisl. tekhn. i vopr. kibernet. (Computer Technology and Problems of Cybernetics--collection of works), vyp. 6, Leningrad, Leningrad University, 1971, pp 139-156 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1107)

Translation: An algorithm is proposed for construction of a net of simple threshold elements, enabling simulation of the operation of any pregiven neuron of the summation neuron type, or the innovation and curvature neuron type. This algorithm is made up of two independent algorithms. Important requirements are made on the minimum number of component elements of the net, high level of reliability in operation of the net, and these requirements make the problem of particular interest both from the standpoint of the theory of neuron synthesis, and from the standpoint of technical realization from the threshold elements. A description is given of a representation of a neuron network in the form of a graph, and operations on graphs are defined. The scheme of an algorithm for construction

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USSR

UDC: 8.74

GRANOVSKAYA, R. M., [illegible], O. Yu., [illegible], vyp. 6, Leningrad, Leningrad University, 1971, pp 139-196

of a minimum graph is given as well as an algorithm for synthesis of an n-input threshold element. A. Doroshenko.

2/2

USSR

UDC: 51:155.001.57:612.82

GRANOVSKAYA, R. M., VOROB'YEV, O. Yu.

"Associative Neuron Memory and Complexity of Neurons"

V sb. Vychisl. tekhn. in vopr. kibernet. (Computer Technology and Problems of Cybernetics--collection of works), vyp. 8, Leningrad, Leningrad University, 1971, pp 107-120 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V890)

Translation: The authors consider the problem of constructing a memory model from homogeneous structural groups, where this model has a certain type of generalization of input codes, i. e. it has certain properties of associative memory. Consideration is also given to formulation of criteria of complexity for neuron models. The number of different states of a neuron which may show up with a change in its threshold is used as the basic criterion of complexity. In this connection, the threshold of a neuron is defined as the minimum amount of excitation necessary for the neuron still to be able to generate a pulse. It is noted that the proposed criteria can be used to evaluate and compare the complexity not only of individual

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USSR

GRANOVSKAYA, R. M., VOROB'YEV, O. Yu., Vychisl. tekhn. i vopr. kibernet., vyp. 8, 1971, pp 107-120

neurons with various sets of parameters, but also circuits of neurons of different types and made up of several layers with different kinds of connections. Illustrative examples are given. V. Mikheyev.

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USSR

UDC 621.9.025.004.6:55.01

GRANOVSKIY, G. I., Doctor of Technical Sciences, Professor, and SIMAKOV, N. A., Engineer

"The Nature of Wear of Teeth of High Speed, Dispersion-Hardened Steel"

Vestnik Mashinostroyeniya, No 11, Nov 71, pp 65-70.

ABSTRACT: The wear products of cutting tools made of dispersion-hardened steels from the sharpening of various steels and titanium alloys were found to be particles of the tool material, varying from 1 to 100 $\mu^2$ in area and 0.1 to 1 μ and more in thickness. They were spread unevenly over the surface of the material being worked from a few μ to 1 mm and more apart in areas of highest plastic deformation on the contact surfaces, surrounded by oxides, indicating increased local temperatures. The distribution of the particles, structure, chemical composition and total mass indicate that adhesion phenomena are most significant in the wear of high speed, dispersion-hardened steel cutting tools. The mechanism of adhesion wear was found to be independent of type of tool material, cutting rate, cutting temperature, feed and cutting depth within the ranges studied. Changing these parameters changes only the intensity of the wear, not its nature.

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USSR

UDC 621.357.7.035-52(088.8)

GRANOVSKIY, I. B., LIFTMAN, I. B., and SKOBLIKOV, R. I.

"Auto-operator for Galvanic Lines"

Author's Certificate No 316755, filed 28 Nov 69, published 24 May 72 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L339P)

Translation: An auto-operator is patented for the galvanic lines which contains a mechanism for transfer, a mechanism for lifting having a flexible traction device, and a clamp for the hangers. It is improved in that in order to increase the reliability, it is provided with an apparatus for accidental disconnections accomplished by a double arm lever, one end of which is connected to a sensor for the accidental shut off and the other with assemblies for the deflection of the flexible traction device.

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USSR

BASS, F. G., AND GRANOVSKIY, M. YA., Institute of Radiophysics and Electronics, Academy of Sciences UkrSSR, Khar'kov

"Effect of Phonon Heating on the Propagation of Strong Electromagnetic Waves in Semiconductors"

Leningrad, Fizika Tverdogo Tela, Vol. 12, No. 8, Aug 70, pp 2437-2441

Abstract: The nonlinear propagation of electromagnetic waves associated with the heating of electrons and phonons is considered. In earlier studies of the propagation of strong electromagnetic waves in semiconductors it was assumed that long-wave phonons with which conductivity electrons basically interact remain in equilibrium; this is possible if the interaction of long-wave phonons with short-wave phonons is more considerable than the interaction of long-wave phonons with conductivity electrons. It was shown in several theoretical studies that this situation does not always occur and in a certain range of temperatures and external electric fields dragging and heating of long-wave phonons can play an important role and short-wave phonons carry out heating transfer. It is shown that in the case of strong electron-phonon interaction the relationship between electron temperature and field amplitude

USSR

BASS, F. G., and GRANOVSKIY, M. YA., Fizika tverdogo tela, Vol. 12, No. 8, Aug 70, pp 2437-2441

changes along with the nature of field attenuation. It is shown that the Maxwell equations become nonlinear in the case of degenerate semiconductors and semimetals due to phonon heating. The authors note that the results indicate the considerable effect of phonon heating on the propagation of electromagnetic waves in a semiconductor plasma; under phonon heating parameters of the phonon system enter into the coefficients of reflection and other characteristics of the electromagnetic field so that high-frequency methods can be used to study not only the electron but also the phonon system.

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AA0047094 GRANOVSKIY V.L.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1-70

241555 ELECTRICAL CONDUCTIVITY OF GAS in magneto-hydrodynamic generators is increased. Gas heated to 1000°K is admitted to an ionisation chamber where voltage signals are applied to the ionised particles to accelerate the electrons which result in further ionisation. The voltage is removed when $n_e$ reaches $10^{12}$ - $10^{13}$ /cm$^3$. This is achieved by $10^{-7}$ - $10^{-8}$ sec. long pulses. A pinch developed then passes through a magnetic field by which an emf that is proportional to the magnetic field and speed of gas is induced in the plasma. The interval between ionising pulses is determined by the development time to pinch. 15.7.64. as 912030/26-25. V.L.GRANOVSKII, D.N.NOVICHKOV. Lenin Electrotechnical Institute (28.8.69.) Bul.14/18.4.69. Class 21g. Int.Cl. H05h.

Vsesoyuznyy Ordena Lenina Elektrotekhnicheskiy Institut im. V. I. Lenina

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21

19790581

USSR UDC: 621.396.6.019.3

PROKHOROV, R. I., ZHORZHOLIANI, B. L., GRANOVSKIY, Yu. V.

"Investigation of the Reasons for Failure of Modules in Complex Radio Equipment"

V sb. Nadezhnost' i kontrol' kachestva (Prilozh. k zh. "Standarty i kachestva") [Reliability and Quality Control--collection of works (Supplement to the Magazine Standards and Quality)], No 1, Moscow, 1971, pp 48-51 (from RZh--Radiotekhnika, No 5, May 71, Abstract No 5V222)

Translation: Statistical data on the failure of modules during the manufacturing process collected over a period of a year and systematized according to special characteristics (construction defects, defects in assembly and adjustment, failures due to the quality of elements) are used as the basis for analysis of the reasons for failures by the Box-Wilson method of planning experiments. As a result of the analysis it is established that the quality of elements has the greatest effect on failure of modules, followed by circuit quality and construction defects. Three tables. N. S.

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USSR UDC: 519.24

GRANOVSKIY, Yu. V.

"Some Methodological Problems of Planning an Experiment"

V sb. Metodol. probl. kibernet. T. 1 (Methodological Problems of Cybernetics --collection of works. Vol. 1), Moscow, 1970, pp 128-132 (from RZh-Kibernetika, No 1, Jan 71, Abstract No 1V175)

[No abstract]

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1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--MOSSBAUER STUDY OF THE THERMOMAGNETIC TREATMENT OF TICONAL ALLOYS -U-

AUTHOR-(05)-POVITSKY, V.A., GRANOVSKY, YE.B., FRIDMAN, A.A., MAKAROV, YE.F., PASHKOV, P.P.

COUNTRY OF INFO--USSR

G

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970. 29, (2), 247-251

DATE PUBLISHED----FEB70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ALLOY, MOSSBAUER EFFECT, MOSSBAUER SPECTRUM, SPECTROSCOPIC ANALYSIS, MAGNETIC PROPERTY, METAL HEAT TREATMENT, X RAY ANALYSIS/(U)TICONAL ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0212 STEP NO--UR/0126/70/029/002/0247/0251

CIRC ACCESSION NO--AP0129468

UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129468

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF THERMOMAGNETIC TREATMENT (ISOTHERMAL QUENCHING IN A MAGNETIC FIELD) ON THE STRUCTURE AND PROPERTIES OF TWO TICONAL ALLOYS WERE STUDIED BY A TECHNIQUE BASED ON THE MOSSBAUER EFFECT. MOSSBAUER SPECTROSCOPY WAS EMPLOYED IN CONJUNCTION WITH X RAY DIFFRACTION TO TRACE THE BEHAVIOUR OF THE ALLOYS AT VARIOUS STAGES OF HEAT TREATMENT. IN THE FIRST STAGE OF AGEING AFTER QUENCHING IN A MAGNETIC PHASES OF THE ALLOY TOOK PLACE; IN THE SUBSEQUENT STAGE THE DEGREE OF ORDER OF THE WEAKLY MAGNETIC PHASE STARTED INCREASING.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201010018-6"

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--VIBRATIONS OF THE NITRO GROUP IN NITROPHENOLS WITH INTRAMOLECULAR HYDROGEN BONDING IN PROTON ACCEPTOR SOLVENTS -U-

AUTHOR-(03)-GRANZHAN, V.A., SEMENENKO, S.V., ZAITSEV, P.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(5), 922-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AROMATIC NITRO COMPOUND, PHENOL, HYDROGEN BONDING, INTRAMOLECULAR MECHANICS, SOLVENT ACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605018/811 STEP NO--UR/0368/70/012/005/0922/0925

CIRC ACCESSION NO--AP0140800

2/2 014 UNCLASSIFIED PROCESSING DATE--04DEC7

CIRC ACCESSION NO--AP0140800

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF INTRAMOL. H BONDING ON FREQUENCIES (NU) OF SYM. AND ASYM. VALENCE VIBRATIONS OF NO SUB2 GROUPS OF SUBSTITUTED NITROPHENOLS, IN DIFFERENT SOLVENTS, AND THEIR MIXTS. WAS STUDIED. IN BASIC SOLVENTS, NU SUBSYM INCREASED DUE TO DISRUPTION OF THE INTRAMOL. H BOND (NO SUB2-OH) AND FORMATION OF INTERMOL. H BOND BETWEEN OH GROUP OF THE PHENOLS AND MOLS. OF THE SOLVENT. IN MIXED SOLVENTS, THE INTENSITY OF NU SUBSYM OF THE FREE AND BONDED NO SUB2 GROUPS DEPENDED ON THE CONCN. OF NONPOLAR AND PROTON ACCEPTOR SOLVENTS.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--A DIGITAL MEASURING SYSTEM FOR AUTOMATIC INTERFEROMETRES -U-

AUTHOR-(05)-GRAPKIN, M.YA., ZORIN, D.I., KAYEKIN, V.V., SVERDLICHENKO, V.D., SHESTOPALOV, YU.N.
COUNTRY OF INFO--USSR

6

SOURCE--MOSCOW, IZMERITEL'NAYA TEKHNIKA, NO 2, 1970,PP 35-37

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DIGITAL SYSTEM, INTERFEROMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1463 STEP NO--UR/0115/70/000/002/0035/0037

CIRC ACCESSION NO--AP0115393

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0115393

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIGITAL MEASURING SYSTEM (DMS) IS INTENDED FOR CHECKING HATCHED MEASURES OF LENGTH UNDER DYNAMIC CONDITIONS. THE ESSENCE OF THE METHOD OF MEASUREMENTS OF THE LENGTH OF THE SUBDIVISIONS OF HATCHED MEASURES CONSISTS IN THE FACT THAT REGISTRATION OF THE ORDER OF INTERFERENCE AND FIXATION OF THE MEASUREMENT RESULTS (AT THEMOMENT THAT THE CENTER OF THE HATCH PASSES UNDER THE AXIS OF THE SLIT OF A PHOTOELECTRIC MICROSCOPE) TAKES PLACE DURING A CONSTANT CHANGE OF THE OPTICAL DIFFERENCE OF THE COURSE OF RAYS IN THE INTERFERCMETER. IN ACCORDANCE WITH THIS, THE FUNCTIONAL LAYOUT OF THE DMA CONSISTS OF A PHOTOELECTRIC DEVICE FOR MEASURING THE ORDER OF INTERFERENCE AND A DEVICE FOR REGISTERING THE MOMENT THAT THE CENTER OF THE HATCH PASSES UNDER THE AXIS OF THE SLIT OF THE PHOTOELECTIC MICROSCOPE FOR OUTPUT OF THE SIGNAL OF RECORDING OF THE MEASUREMENT RESULT. THE BASIC METROLOGICAL AND TECHNICAL PARAMETERS OF THE DMS ARE PRESENTED.

UNCLASSIFIED

USSR UDC 547.241

GRAPOV, A. F., KOZLOV, V. A., BABKINA, E. I., and MEL'NIKOV, N. N., All Union Scientific Research Institute of Chemical Plant Protective Agents, and the Branch of the Scientific Physical-Chemical Research Institute imeni L. Ya. Karpov

"Chlorocyclohexylthiophosphonic Acid and Cyclohexenylthiophosphonic Acid Chlorides and Amides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1919-1921

Abstract: Heating phosphorus trichloride with chlorocyclohexyldichlorophosphine at 125° for 3 hrs yields 2-chlorocyclohexylthiophosphonic acid dichloride, which reacted with triethylamine in benzene solution converts to cyclohexen-1-ylthiophosphonic acid dichloride. α-Chlorocyclohexyldichlorophosphine reacted with triethylamine yields cyclohexen-1-yldichlorophosphine which can be converted to a derivative of tetracoordinated phosphorus by an exchange reaction with phosphorusthiotrichloride.

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USSR

UDC 547.451

GRAPOV, A. F., and MEL'NIKOV, N. N., All-Union Scientific Studies Institute of the Chemical Compounds for the Protection of Plants

"Organophosphorus Fungicides"

Moscow, Uspekhi Khimii, No 9, Vol 42, 1973, pp 1681-1698

Abstract: The current literature on particular organophosphorus compounds used as fungicides is reviewed together with such information as synthesis, doses, types of organisms against which each is effective, etc. Classes of compounds discussed include derivatives of phosphorus and phosphonous acids, phosphine, phosphone salts, the acids of tetracoordinated phosphorus, its salts and its esters, and the amides of the various phosphorus acids. The latter two sections were considered in much greater detail than the former sections. The fungicidal activity of P(III) is apparently due to its being a reducing agent. The phosphone salts are significantly more effective than phosphine.

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USSR

UDC 547.26'118

GRAPOV, A. F., KOZLOVA, T. F., MEL'NIKOV, N. N.

"Alkoxy- and Alkylthiomethylthiophosphonic Acid Dichlorides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, p 676

Abstract: The best method for the synthesis of thiophosphonic acid dichlorides is by heating the corresponding phosphonic acid dichloride with phosphorus pentasulfide to 120-160°. Following acid dichlorides have been synthesized, parent acid, b.p., $n_D^{25}$, and $d_4^{25}$ being reported: methoxymethylthiophosphonic, 34-35°/0.12 mm, 1.5548, 1.4262; ethoxymethylthiophosphonic, 34-35°/0.12 mm, 1.5358, 1.3512; ethylthiomethylthiophosphonic, 66-67.5°/0.12 mm, 1.5852, 1.3797; isopropylthiomethylthiophosphonic, 82-82.5°/0.17 mm, 1.5702, 1.3392; and butylthiomethylthiophosphonic acid, 85-86°/0.17 mm, 1.5622, 1.2975.

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USSR

UDC 632.95'

GRAPOV, A. F., MEL'NIKOV, N. N., ANDREYEVA, YE. I., RASVODOVSKAYA, L. V., PRONCHENKO, T. S., USMANOV, M. T., MIKHAYLOVA, O. B., SMIRNOVA, K. F., and ZBARSKIY, F. SH.

USSR AUthors' Certificate No 276572, Cl. Aol n 9/36, filed 13 Jan 69, published 11 Feb 72 (from RZh-Khimiya, No 20, 25 Oct 72, Abstract No 20N582 by T. A. Belyayeva)

Translation: In order to widen the assortment of effective fungicides for controlling cotton wilt, it is suggested that use as systemic fungicides be made of asymmetric diamides and amidohydrazides of alkylphosphonic and alkylthiophosphonic acids of the formula $R'R''N(R)P(X)(NH)_nR'''$ (I) (R and R' = alkyl; R" = H or alkyl; R"' = unsubstituted or substituted phenyl; n = 1 or 2; X = O or S). I is obtained from amines or hydrazides and alkylphosphonic or alkylthiophosphonic acid chlorides. The preparations were tested under field conditions on naturally infected plants. Experimental results showed that, as compared with control, I possesses definite systemic activity, suppressing the development of cotton wilt. Data are presented on tests of I in comparison with phosbutyl.

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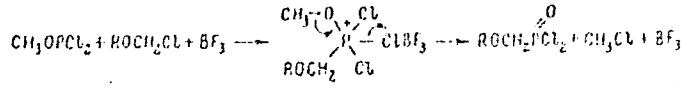
USSR UDC: 547.241

KOZLOVA, T. F., GRAPOV, A. F., MEL'NIKOV, N. N., All-Union Scientific Research Institute of Agents for Plant Protection

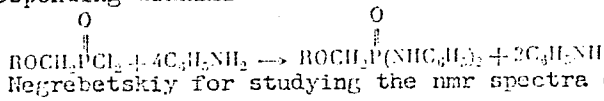
"The Reaction of O-Methyl Dichlorophosphite With Alkyl Chloromethyl Ethers, Catalyzed by Boron Trifluoride Etherate"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1282-1285

Abstract: The authors studied the reaction of alkyl chloromethyl ethers with methyl dichlorophosphite, catalyzed by the etherate of boron trifluoride. When the reaction mixture is heated for several hours at 80-100°C, alkoxymethylphosphonic acid dichlorides are formed in 25-55% yield. The reaction is apparently analogous to the Arbuzov reaction. The electrophilic boron trifluoride facilitates formation of an intermediate pseudophosphonium complex.



Aniline in an ether solution readily converts the alkoxymethyl phosphonic acid dichlorides to the corresponding dianilides.



The authors thank V. V. Negrebetskiy for studying the nmr spectra of the compounds.

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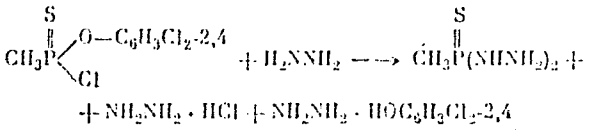
USSR UDC: 547.26'118

MIKHAYLOVA, O. B., GRAPOV, A. F., MEL'NIKOV, N. N., All-Union Scientific Research Institute of Chemical Agents for Plant Protection

"Methylthiophosphonic Acid Dihydrazide"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1420-1421

Abstract: Experimental work was done which showed that hydrazine hydrate acts on O-2,4-dichlorophenyl methylthiophosphonic acid chloride with hydrazinolysis of both the acid chloride and labile ester bonds to give methylthiophosphonic acid dihydrazide. Treatment of the reaction mixture with excess potassium carbonate isolates the end product.



Methylthiophosphonic acid dihydrazide with benzaldehyde and substituted benzaldehydes gives the corresponding hydrazones.

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USSR UDC 632.95

VLADIMIROVA, I. L., GRAPOV, A. F., MANDEL'BAUM, YA. A., and MEL'NIKOV, N. N.

"Fungicidal Mixed Ester-amides and Diamides of Thio- and Dithiophosphoric and Phosphonic Acids"

V sb. Khimiya i primeneniye fosfororgan. soyedin. (Chemistry and Application of Organophosphorus Compounds -- Collection of Works), Moscow, "Nauka," 1972, pp;449-476 (from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14N485 by T. A. Belyayeva)

Translation: The authors synthesized ester-amides of thiophosphoric acid amides and hydrazides of O-alkyl-S-aryldithiophosphoric acid, ester-amides of methyl-, chloromethyl- and trichloromethylphosphonic acids, O-alkyl N, N'-diaryldiamidothiophosphates, O-alkyl N-alkyl-N'-aryldiamidothiophosphates, amides of thiophosphonic acids, dithiocyclodiphosphazanes, and diamides of methylphosphonic acid, in order to study their fungicidal activity. Ester-amides of methylphosphonic acid, although containing groups capable of participating in redox processes, suppress the growth of fungal organisms weakly. Derivatives of thiophosphoric and thiophosphonic acids showed significant fungicidal activity. S-Aryl amidodithiophosphates possess the highest fungicidal activity. The fungicidal activity of the preparations usually rises with an increase of the radical at the nitrogen from $C_1$ to $C_4$.

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UDC: 547.26'118

USSR

RAZVODOVSKAYA, L. V., GRAFOV, A. F., MEL'NIKOV, N. N., All-Union Scientific Research Institute of Chemical Agents for Plant Protection

"The Reaction of Phosphonic and Thiophosphonic Acid Chlorides With α-Pyrrolidone"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1277-1282

Abstract: The authors investigated the reaction of phosphonic and thiophosphonic acid chlorides with substituted amides of carboxylic acids and lactams, and also studied the reaction of secondary amides of phosphonic acids with acetyl chloride. It was found that when pyrrolidon-2-ylmethylphosphonic acid chloride reacts with primary and secondary amines and anilines, asymmetric diamides of methylphosphonic and thiophosphonic acids are formed. The same products were formed by reacting pyrrolidon-2-ylmethylphosphonic acid with primary amines and anilines. The products of the reaction of pyrrolidon-2-ylmethylphosphonic acid with secondary amines, alcohol and phenol undergo thermal decomposition leading to the formation of α-thiopyrrolidone and its conversion products. When methylphosphonic acid dichloride reacts with α-pyrrolidone, a mixture of pyrrolidon-2-ylmethylphosphonic acid chloride, 1-

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RAZVODOVSKAYA, L. V., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1277-1282

(pyrrolinyl-2) pyrrolidone-2 phosphonate and di(pyrrolidon-2-yl) dimethyl pyrrophosphonate is produced. The authors thank T. F. Tulyakova, M. Sh. Shifman and M. K. Vasilenko for doing the spectral studies.

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Organophosphorous Compounds

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UDC 632.954

GRAPOV, A. F., LEBEDEVA, N. V., MEL'NIKOV, N. N., SERGEYEVA, T. A., STONOV, L. D., TITOVA, L. M., and VOLKOTRUB, E. N., All Union Scientific Research Institute of Chemical Means of Plant Protection

"A New Herbicide Called Isophos"

Moscow, Agrokhimiya, No 1, 1972, pp 96-103

Abstract: Herbicidal properties of isophos-1, $ClCH_2P(S)(NHC_4H_9\text{-sec.})(OC_6H_3Cl_2\text{-}2,4)$, and isophos-2, $ClCH_2P(S)(NHC_3H_7\text{-iso})(OCOH_3Cl_2\text{-}2,4)$, were tested on many plants, including cockspur grass (Echinochloa crus-galli), and rice grass (Echinochloa oryzicola), the weeds which commonly grow with rice. Application of 2-6 kg isophos-1 or isophos-2/ha killed 100% of the above weeds. The best time for application of the herbicides was before sowing of rice, or prior to its sprouting. A surface application produced the best results. Both types of isophos in 4-8 kg/ha doses were toxic to garden orache, amaranth, and white bent. Field pennycress, spring wild oat, and knotweed were of average sensitivity toward isophos.
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GRAPOV, A. F., et al., Agrokhimiya, No 1, 1972, pp 96-103

Among the cultivated plants, rice was most resistant toward this herbicide, followed by wheat, oats, and barley (most sensitive). Cotton, beans, radishes, and sunflowers are resistant to isophos, but sugar beets and flax are sensitive. Carrots were most resistant to isophos in doses of 1-4 kg/ha and tomatoes and cucumbers showed medium resistance. Isophos was 100% effective against rice grass in meadow-marshy, soddy-podzolic, and sierozem soils. It was only 83-97% effective in soils with high humus content. Effectiveness of isophos lasted for 30-100 days after application. Analysis of the soil horizons indicated that it remained mainly in the top 0-10 cm of soil. The structure of the aryl radical determines the phytotoxic properties of amides of thio- and dithiophosphonic acids. Presence of two Cl atoms in the phenyl group increases the herbicidal effects of these compounds.

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UDC 547.341.26'118,07

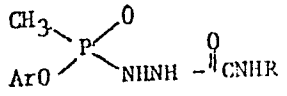
USSR

MIKHAYLOVA, O. B., MEL'NIKOV, N. N., and GRAPOV, A. F.

"A Method of Making β-Phosphorylated Semicarbazides"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 9, Mar 71, Author's Certificate No 296774, Division C, filed 20 Feb 70, Published 2 Mar 71, p 83

Translation: This Author's Certificate introduces: 1. A method of producing β-phosphorylated semicarbazides of the general formula



where R is an alkyl or aryl, and Ar is an aryl. As a distinguishing feature of the patent, an unsubstituted hydrazide of O-arylmethylphosphonic acid is interacted with alkyl- or arylisocyanate in an organic solvent such as benzene with the application of heat and subsequent isolation of the goal product by conventional methods. 2. A modification of this method distinguished by the fact that heating is done to 80°C.

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USSR

UDC: 546.18

GRAPOV, A. F., MEL'NIKOV, N. N., and RAZVODOVSKAYA, L. V., All-Union Scientific Research Institute for Chemical Means of Plant Protection, Moscow, State Committee for Chemistry USSR

"Cyclodiphosphazanes"

Moscow, Uspekhi Khimii, Vol 39, No 1, Jan 70, pp 39-61

Abstract: Recent foreign and Soviet literature on the chemistry of four-membered N-P ring compounds which might be used in heat-resistant plastics or biologically active preparations is reviewed. The compounds described contain alternating P and N atoms in the ring with tri, tetra, or penta-coordinate P atoms. The reviewed data pertain to determination of the structure of cyclodiphosphazane ring and studies of syntheses, chemical conversions, and physical and chemical properties of cyclodiphosphazanes. Relative positions of atoms in the molecules were determined and the nature of the N-P bond was conclusively established in compounds with tetra- and penta-coordinate P atoms only. These conclusions were made from data obtained by X-ray diffraction study, analysis of the IR, UV, Raman, and NMR spectra, and measurements of dipole moments.

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UDC 547.241

USSR

MIKHAYLOVA, O. B., GRAPOV, A. P., and MEL'NIKOV, N. N.

"Phosphorylated Semicarbazides and Thiosemicarbazides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1449-1451

Abstract: Reaction of the hydrazides of O-arylmethylphosphonic and thiophosphonic acids as well as that of the N,N-diethylamidomethylthiophosphonic acid with alkyl- and arylisocyanates, alkyl- and arylisocyanates was investigated. The products of these reactions are β-phosphorylated semicarbazides and thiosemicarbazides. The phosphonic acid hydrazides react faster with isocyanates than corresponding thiophosphonic acid hydrazides. The structures of all products were confirmed by IR and PMR spectral data.

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